REMARKS

This responds to the Office Action mailed on January 18, 2008. Reconsideration is respectfully requested.

By this amendment, claims 1 – 5, 11 – 14 and 19 – 23 are cancelled and claims 28 – 33 are added. Claims 6 – 10, 15 – 18 and 24 – 27 were previously cancelled. As a result, claims 28 – 33 are now pending in this application.

§103 Rejection of the Claims

Claims 1-4, 11-14 and 19-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott (U.S. Publication Number 2003/0098422) in view of Spremo (U.S. 6,930,775).

Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott in view of Spremo as applied to claim 1, and further in view of Dai (U.S. Publication Number 2003/0230728).

Claims 21 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott in view of Spremo as applied to claims 15 and 20, and further in view of Petrich (U.S. Publication Number 2003/0160182).

Claim 22 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Silcott in view of Spremo as applied to claim 5, and further in view of Reichert (U.S. 6,911,344) or Giebeler (U.S. 6,313,471).

By this amendment, claims 1 – 5, 11 – 14 and 19 – 23 are cancelled. Applicant's new claim 28 is directed to a standoff bioagent detection system that uses differential absorption. The system includes a detector to detect a fluorescence level, and a controller. The controller is configured to initially cause a plurality of laser diodes to generate a range of ultraviolet wavelengths. As recited in claim 28, when the detector detects that a fluorescence level of an aromatic protein resulting from the range ultraviolet wavelengths exceeds a threshold, the controller initiates a process using differential absorption to detect an aromatic protein. As recited in claim 28, as part of the differential absorption detection process, the controller addresses selected pairs of the laser diodes to sequentially generate first and second ultraviolet

wavelengths by sequentially pulsing the selected pairs in rapid succession. As further part of the differential absorption detection process, the controller resolves in time and correlates detected fluorescence levels resulting from sequential transmission of the first and second ultraviolet wavelengths to determine a differential absorption level. As further recited in claim 28, the second ultraviolet wavelength includes a calibrated wavelength offset from the first ultraviolet wavelength. For example, as recited in claim 29, the calibrated wavelength offset is selected for the detection of differences in atmospheric absorption levels.

Applicant submits that none of the cited references teach, suggest or motivate differential absorption, as recited in Applicant's claim 28. Although Silcott discloses that laser diodes can provide a single wavelength (see Silcott paragraphs [0048] – [0050]), Silcott does not generate first and second ultraviolet wavelengths by sequentially pulsing selected pairs in rapid succession. Silcott furthermore does not resolves in time and correlate detected fluorescence levels resulting from sequential transmission of the first and second ultraviolet wavelengths to determine a differential absorption level. Accordingly, claim 28 is believed to be allowable over Silcott.

Applicant finds no structural features in Silcott that Silcott's system is capable of generating first and second ultraviolet wavelengths by ***sequentially pulsing selected pairs in rapid succession***. Applicant further finds no structural in Silcott that Silcott's system is capable of ***resolving in time and correlating*** detected fluorescence levels resulting from sequential transmission of the first and second ultraviolet wavelengths to determine a differential absorption level. Accordingly Applicant further submits that claim 28 is allowable over Silcott at least because of these structural differences. The use of this differential absorption technique may help facilitate robust sensing in a variety of atmospheric conditions because large variations of common background signals may be decoupled.

Spremo, Reichert and Giebeler have been cited for disclosing, among other things, the use of Blaze gratings to separate wavelengths. Applicant new claims 28 – 33 do not recite the use of a Blaze grating. The combination of Spremo, Reichert and Giebeler, with Silcott and any of the other references, however fails to result in the elements recited in Applicant's claims 28 -33.

Dai has been cited for disclosing an addressable array of UV diodes. The combination of Dai, with Silcott and any of the other references, however fails to result in the elements recited in Applicant's claims 28 -33.

Petrich has been cited for disclosing, among other things, a range finder, however Applicant's claims 28 – 33 do not recite a range finder. The combination of Petrich, with Silcott and any of the other references, however fails to result in the elements recited in Applicant's claims 28 -33.

In view of the above, Applicant submits that claim 28 is allowable over the cited references. Claim 31 is also believed to be allowable for similar reasons. Claims 29, 30, 32 and 33 are believed to be allowable at least because of their dependency on either claim 28 or claim 31.

Applicant's claims 29 and 32 are further believed to be allowable over the cited references by reciting that the differential absorption level is compared with a calibrated differential value to determine whether an elevated level of a predetermined aromatic protein is present. Applicant's claims 29 and 32 are further believed to be allowable by reciting that the selected pairs of the laser diodes are selected to generate first and second ultraviolet wavelengths to fluoresce the predetermined aromatic protein, and that the calibrated wavelength offset is selected for detection of differences in atmospheric absorption levels. No such teachings are found in any of the cited references.

Applicant's claims 30 and 33 are further believed to be allowable over the cited references by reciting that the laser diodes comprise an addressable array of laser diodes, the first and second ultraviolet wavelengths comprising a pair of ultraviolet wavelengths, and that the addressing, the resolving in time and the correlation are repeated for other pairs of ultraviolet wavelengths to detect corresponding other aromatic proteins based on differential absorption levels. No such teachings are found in any of the cited references.

Support for Applicant's new claims may be found throughout Applicant's specification including the figures, when taken as a whole. More specific support may also be found on page 8 of Applicant's specification in the following paragraph:

In some embodiments, a rapid ***sequential illumination with a differential pair of wavelengths*** is performed so that the selected signal can be resolved in time and correlated to the particular emission/excitation wavelength. In this way, the differential absorption may provide for a more robust detection.

More specific support may also be found on page 9 of Applicant's specification in the following paragraph:

In some embodiments, a user may use I/O 208 to select a broad-band illumination, or select a ***sequential pulsing of individual or pairs of laser diodes 202***. Hand-held bioagent detector 200 is illustrated as transmitting ultraviolet wavelength 203 (λ_n) and ultraviolet wavelength 205 ($\lambda_n + \Delta\lambda_n$). Ultraviolet wavelength 205 may include a calibrated wavelength offset ($\Delta\lambda_n$). In embodiments, system 200 may detect small signal differences between the differential absorptions and detector 204 may operate in a signal-subtraction mode.

In some embodiments, ***differential absorption and subtraction*** comprises exciting the Tryptophan at wavelengths where different absorption exists at a known pre-determined (i.e., calibrated) level. The resultant fluorescence signal may accordingly also be at a different level, which may also be known from the calibration. The subtraction of the fluorescence signals may help determine the existence of Tryptophan by ***testing against the calibrated differential value*** which may be stored in a look up table, such as calibration table 110 (FIG. 1A). Differential signal subtraction may help facilitate robust sensing in a variety of atmospheric conditions because, among other things, large variations of common background signals may be decoupled.

More specific support may also be found on page 11 of Applicant's specification in the following paragraph:

In operation 512, pairs of ultraviolet wavelengths may be generated and directed toward a location where bioagents are suspected. In some embodiments, operation 512 may ***sequentially generate*** a first ultraviolet wavelength (λ_n) and a second ultraviolet wavelength ($\lambda_n + \Delta\lambda_n$). The second ultraviolet wavelength may include a calibrated wavelength offset ($\Delta\lambda_n$).

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (480) 659-3314 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date April 4, 2008

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 4 day of April 2008.

Ryan Saunders
Name

Signature